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File Code: 3420 **Date:** August 12, 2004
Route To:

Subject: Bark Beetle Risk Surrounding Eager Biomass Plant

To: Forest Supervisor, Apache-Sitgreaves National Forests

This report documents the site visit Joel McMillin, entomologist with our Forest Health Protection unit, made to the Eager biomass plant. Joel visited the plant with Doug Beal on August 4, 2004, to determine bark beetle risk associated with hauling fresh chips to the site.

According to plant operators at the site, approximately five to ten semi truckloads of chips are hauled daily to the site (***Figure 1***). These chips are burned in the incinerator within a matter of a few days. Hauling of fresh chips to the plant for energy production apparently began in the winter of 2003/2004. Currently, the chips come from the Show Low area where small diameter ponderosa pine is being thinned.

Figure 1. *Semi unloading fresh chips at Eager biomass plant.*

There are potential risks associated with chipping fresh pine slash and bark beetles. Although bark beetles cannot use chips as brood material (food or oviposition sites), terpenes volatizing from chips can attract beetles to an area; and beetles may attack surrounding standing green trees. In regard to the Eager biomass plant, there are two potential risks.

First, if infested trees are being chipped and chips hauled to the plant, there is potential for bark beetles to be imported to the site. Based on our observations of the chipping material and discussion with the plant operator, we found that only fresh green uninfested slash is being chipped. Therefore, it does not appear that beetles are being brought directly to the site via the chips.

Second, the large quantity of fresh chips at the plant may be attracting bark beetles within the vicinity; and they may attack nearby pine trees. Based on their walk-through of the fresh chip piles, Doug and Joel found two bark beetle species were present on the chips or hovering around them. The first of these, red turpentine beetle, is notorious for being attracted to resins and terpenes; and its presence is not surprising. We frequently see this bark beetle in areas following thinning and chipping and following fires. Fortunately, this species rarely mass attacks trees and therefore is not considered to be a tree killer. The second species appears to be a twig beetle (*Pityophthorus* species). Several piñon pine on the hills behind the plant and neighboring areas such as the Murray Basin Trailhead site were observed to have twig beetle-caused damage (***Figure 2***).

In most years, damage caused by these beetles is limited to small branches on young piñon pine. However, during the ongoing drought, we have frequently seen piñon twig beetles attacking larger branches and even the boles of piñon saplings. Larger piñon that are heavily infested by twig beetles are often subsequently attacked by piñon ips. Because piñon mortality has been occurring within the area for more than two years, it does not appear there is any relationship between the fresh chips and piñon mortality in the greater Round Valley area. In fact, the apparent drawing of beetles out of the piñon-juniper woodlands to the biomass plant could be viewed as a positive in that they will likely die, as there are no hosts in the immediate area. Tree species in the residential neighborhoods surrounding the plant largely consist of a variety of hardwoods and ornamental conifers which are not hosts of the bark beetle species seen at the plant.

Therefore, we do not feel that the hauling of fresh green chips to the biomass plant poses any substantial risk at this time. If the plant begins hauling large quantities of chips originating from infested trees, there is a possibility that beetles may be imported into the area. However, because there are few potential hosts in the immediate area surrounding the plant, we feel that this risk is relatively small.

Figure 2. *Twig beetle-caused branch tip mortality of piñon infested by dwarf mistletoe at the Murray Basin Trailhead.*

We would like to install a few bark beetle traps at the site to determine a more comprehensive list of what species are present at the site and their relative numbers. These traps are baited with beetle specific lures and are typically used to monitor beetle flight and their populations. Joel had discussions with the plant owner and operators about hanging a few bark beetle traps and there was agreement that this would be a good idea.

If you have any questions regarding our assessment of bark beetle activity and risk associated with the biomass plant, please contact us at you convenience. Joel (jmcmillin@fs.fed.us) can be reached at (928) 556-2074.

/s/ John Anhold
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